DOCUMENT RESUME

ED 201 866 CE 028 983

TITLE	Alternative Procedures for the Identification of Programs, Services and Activities for Providing Vocational Education to Special Populations. Deliverable F.
INSTITUTION	Conserva, Inc., Raleigh, N.C.
SPONS AGENCY	Bureau of Occupational and Adult Education (DHEW/OE), Washington, D.C. Div. of Research and Demonstration.
BUREAU NO	498AH80021
PUB DATE	[Jun 80]
CONTRACT	300-78-0586
NOTE	73p.; For related documents see CE 028 985-986.
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Bids; *Delivery Systems; Disabilities; Disadvantaged; Females; *Identification; Literature Reviews; Needs Assessment; Postsecondary Education; Program Proposals; *Responsibility; Secondary Education; *Special Programs; *Statewide Planning; Surveys; *Vocational Education
IDENTIFIERS	Delphi Technique; Nominal Group Technique

ABSTRACT

This document presents alternative procedures that states can use to identify programs, services, and activities to achieve objectives for delivering vocational education to special populations. (This is the fifth component to the Management Evaluation Review for Quality planning model, which has two key activities: identification and comparison of programs, services, and activities; and allocation of responsibility for their provision.) Chapter 1 describes four alternative planning procedures: survey techniques, Delphi technique, literature search, and nominal group technique. Each description contains three major sections: overview of procedure, key considerations in its use, and implementation steps. Example modifications of the procedure and sources of additional information are presented as applicable. Chapter 2 presents two alternative methods for allocating responsibility (the second key activity): competitive bids and allocation based on distribution of need. Each description is organized into the same three major sections as were the descriptions in chapter 1. (YLB)

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ALTERNATIVE PROCEDURES FOR THE IDENTIFICATION OF PROGRAMS, SERVICES AND ACTIVITIES FOR PROVIDING VOCATIONAL EDUCATION TO SPECIAL POPULATIONS

DELIVERABLE F

Project No. 489AH80021
Contract No. 300780586

U. S. DEPARTMENT OF HEALTH,
EDUCATION, AND WELFARE

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Bureau of Occupational and Adult Education
Division of Research and Demonstration
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CE028983

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PREFACE

Contained within this document are alternative procedures which States can use to identify programs, services and activities to achieve objectives for delivering vocational education to special populations. This represents Deliverable F of a USOE funded study pertaining to planning for special populations. The presentation of the procedures is within the framework of the Management Evaluation Review for Quality (MERQ) planning model, which has been revised to better accommodate planning for special populations. Included within the MERQ are six major components of planning: policy development; needs assessment; goal formulation; development of objectives; identification of programs, services and activities to meet objectives; and allocation of resources. The quality aspects of each of these stages of planning are characterized by a number of evaluative criteria, some of which address the planning process itself and others targeting characteristics of the planning products or processes. It is for this former class of evaluative criteria, those addressing the key planning activities, that alternative procedures are presented.

Within the fifth component of the MERQ for planning--identification of programs, services and activities to achieve objectives--are two Key Activities:

1. Alternative programs, services and activities are identified and compared relative to their potential for attaining stated objectives.
2. Responsibility for the provision of programs, services and activities is allocated to specific levels of, types of, and individual agencies and institutions.

Chapter One of this report describes alternative procedures which States can use to accomplish the first Key Activity. Alternative procedures for allocating responsibility are presented in Chapter Two.

Each description of an alternative planning procedure contains three major sections:

- an overview of the procedure;
- key considerations in using the procedure; and
- steps to follow in implementing the procedure.

The first section gives a brief overview of the procedure in order to provide insight to the key considerations which follow. The key considerations define certain requirements and parameters of the procedure. Cost, staff, time, equipment and facilities, participants, applications, and side-effects are the major considerations addressed within the procedural descriptions. The third section outlines the implementation steps to be followed in using a procedure. Additionally, example modifications of the procedure and sources of additional information are presented as applicable.

As this document represents a preliminary deliverable of a unified planning system, it is not designed to stand alone. The descriptions of alternative planning procedures will be supplemented with an access component which will describe how to use the planning system. This will include a mechanism for State self-assessment of existing planning procedures, means for accessing appropriate procedures for improving State level planning, and descriptions of characteristics of the MERQ processes and products.

CHAPTER ONE

IDENTIFICATION OF ACTIVITIES

CHAPTER ONE

IDENTIFICATION OF ACTIVITIES

The first key activity of this MERQ component is alternative programs, services and activities are identified and compared relative to their potential for attaining stated objectives. Since the attainment of objectives will depend upon selection of the most appropriate programs, services and activities, it is extremely important that the State agency be able to identify and compare alternative strategies for achieving its objectives.

Presented within this chapter are four alternative procedures which States can use to identify programs, services and activities for providing vocational education to special populations. The first alternative describes survey techniques as they can be applied in eliciting perceptions of effective strategies for serving special populations. The Delphi Technique, which is a quasi-survey approach, is presented as the second alternative. It is an iterative process of soliciting responses and providing feedback to respondents until a majority or consensus opinion is established. The third alternative presented, a literature search, can represent a cost-effective means of identifying activities, provided ample documentation in the area of interest exists. An informal method of selecting from among the identified activities is also provided within this description. The fourth alternative presented is the Nominal Group Technique. This procedure is a systematic means of soliciting individual responses and aggregating group judgments through mathematical rating or ranking. Descriptions of the four alternatives follow.

SURVEY TECHNIQUES

SURVEY TECHNIQUES: OVERVIEW

A number of different survey approaches can be utilized to identify potentially successful activities for serving special populations. Planning for the implementation of a survey procedure involves defining the information needs of the State agency, selecting a sample of respondents and developing the survey instrumentation. Pretested survey instruments are then either mailed to respondents, or telephone or personal interviews can be conducted to collect information. The results of the survey, i.e., activities for serving special populations, are determined through either computerized or hand analyses of the completed questionnaires. Dependent on the type of scaling and item format selected, the survey approach is also capable of prioritizing identified State and/or local activities. The results are then summarized in report form to serve as a basis for State agency programmatic decisions, to provide feedback to respondents, and to broaden the research base of knowledge regarding the delivery of vocational education to special populations.

SURVEY TECHNIQUES: KEY CONSIDERATIONS

- Cost: Considerable expenses are involved in implementing a survey approach, though these vary dependent on such factors as the sample size, volume of data collected, and method of data collection. A major expense is professional staff time, which is extensive during the planning stages of the survey, questionnaire development and the analysis and reporting of results. If an interview method is used there are also expenses for training interviewers and travel or telephone costs. Other costs include questionnaire reproduction, postage, clerical staff time and computer time (optional).

- Staff: Utilization of a survey procedure requires one half-time staff member trained in survey techniques and data analysis, preferably assigned to manage the project. Temporary full-time interviewers may be required if an interview approach is used. Additional professional staff may be involved in questionnaire design. Secretarial and clerical involvement is required in preparing the questionnaire, mailing out and recording returns, and assisting in the analysis and reporting of results.

- Time: A survey approach will generally require considerable time to implement. At least two weeks should be allowed for preparatory tasks, and, dependent on the format and length of the questionnaire, instrument development requires an additional two to four weeks. The time needed to conduct the survey varies dependent upon the data collection method used and the size and composition of the sample, but will generally range from two weeks to two months. Data analysis and reporting of results require an additional two to four weeks. Thus the time required to complete a survey procedure ranges from two to four and one-half months, though the time parameters can be increased or decreased somewhat by changing the level of staff effort on the project.

- Equipment and Facilities: Access to computer facilities facilitates the analysis of survey data. If a telephone interview approach is utilized telephones must be provided for each of the interviewers (with WATS lines, if cost-effective).

- Participants: The selected sample of respondents should adequately represent the population from which it was drawn. Thus, one of a number of alternative sampling techniques must be employed. The success of the procedure requires that the respondents are knowledgeable in the area targeted by the survey.

- Applications: The survey technique can be used to identify activities for serving any target population by modifing the composition of the sample and the instrumentation. It is particularly useful for gathering diverse perceptions as to what constitutes effective activities for serving special populations and for prioritizing potential activities. The survey approach should not be used if there is insufficient expertise in the field from which to draw a sample. It is also difficult to employ when targeting more than one special population unless a large sample and lengthy survey instrument are utilized.

- Side-Effects: The survey process provides for diverse, non-SEA input into activity identification. However, when lacking respondent committment, the procedure may cause resentment on the part of respondents because of the amount of time they must invest in the survey process.

SURVEY TECHNIQUES: IMPLEMENTATION STEPS

Step 1: Define Information Needs

The first step in utilizing a survey technique is to outline the type or types of information which are needed to identify alternative programs, services or activities. Direction for this step is provided by the objectives developed in the previous planning stage. However, it is important that decision makers clarify what information would be necessary to select activities to achieve these objectives and how the information will be used. For example, an objective targeted to limited English-speaking individuals might read: By September 1, 1980, each local educational agency shall provide the support services necessary for persons with limited English-speaking abilities to complete vocational education programs. In order to achieve this objective, information is needed on the types of support services which are perceived to be the most effective in serving individuals with different primary languages. Additionally, information is needed as to what types of activities the State agency could initiate to encourage or facilitate the implementation of identified support services at the local level.

In defining information needs, consideration should be given to all objectives of the State agency. In some instances multiple objectives may have the same or similar information needs. Thus, duplication of effort can be eliminated by simultaneously collecting information on different objectives with similar data requirements.

The process of defining information needs should include all those individuals who will make use of collected data, e.g., planners, administrators, coordinators of services to special populations, or representatives of other State agencies. The process will then provide direction to the implementation of the procedural steps which follow.

Step 2: Select Sample

In selecting a sample to survey individuals' perceptions of effective strategies for serving special populations there are three major considerations with which the State agency must contend. These are:

- defining the population to be sampled;
- determining the size of the sample; and
- selecting a sampling methodology.

Defining the population to be sampled is essentially answering the question: Whose input is desired in the activity identification process? The population could consist of secondary and/or post-secondary educators, or it could include a subset of educators, such as teachers, administrators or counselors. The SEA may wish to obtain input from students or go outside the sphere of vocational education and sample from employers, other service providers or special interest groups. Alternatively, the population could include more than one of these sources of input. Deciding whom to survey is influenced by a number of factors. A major factor is the information needs identified in the previous step. Dependent on the type of information desired, those considered most capable of providing that information will compose the population. Additionally, characteristics of the special population(s) targeted by the surveys and the assigned and potential responsibilities of alternative delivery systems should be taken into consideration when deciding whom to sample.

A second decision which the State agency must make in planning the survey is the number of individuals to include in the sample. The following characteristics of sampling theory provide some guidance in setting the sample size:

- The accuracy of the information will increase as the sample size becomes larger. Too small a sample can underrepresent the population and thus produce erroneous data. However, too large a sample can result in redundancy and greater precision than needed and thus produce an unnecessary increase in data collection costs.

- The more heterogeneous the population to be sampled the greater the sampling error, and thus the larger the sample should be. The population will generally become more heterogeneous as the number of objectives or types of special populations addressed by the survey is increased.

- Larger samples will be needed when the data are to be reported or analyzed by one or a combination of categories (e.g., by sex, race, age group, handicapping condition).

A third consideration in sampling is the type of sampling methodology to be used in selecting respondents. Sampling procedures fall within two typologies: probability and non-probability. The various types of probability sampling techniques (e.g., random sampling, cluster sampling, systematic selection, multi-stage sampling) choose individuals to be surveyed based on known probabilities of selection, thus enabling reliable generalization to the population being sampled. Non-probability sampling procedures, on the other hand, select individuals based on the convenience or discretion of the researcher. While such techniques are generally frowned upon by sampling theorists, difficulties in listing the population may preclude the use of probability models. For example, to employ a probability sampling procedure to select a sample of employers it would be necessary to list all the employers of the special population of interest (most likely stratigied by size and/or type of firm) and select units from the population of employers. Alternatively, the State, with the cooperation of local agency personnel, could judgmentally select those employers that it deemed representative of the population of interest. If the purpose of the survey is to obtain information from exemplary programs, the nomination procedure is an effective non-probability sampling technique. Using this technique the State agency requests nominations from knowledgeable individuals (e.g., advocacy groups, regional administrators, personnel from other State agencies) of programs which meet pre-set criteria defining quality deliverysystems. Those programs nominated are then screened based on the criteria,

and the screened programs compose the sample.

As an in-depth analysis of the relative advantages and disadvantages of alternative sampling procedures is beyond the scope of this report, the reader is referred to the following sources for further information: Babbie, 1973; Warwick & Lininger, 1975; Kish, 1965.

Step 3: Develop Survey Instrumentation

The third step in conducting a survey, developing the instrumentation, involves the following components:

- Determine the data collection method.
- Develop an analysis plan.
- Develop the questionnaire items and scaling.
- Write accompanying instructions.
- Pretest the instrument.
- Finalize the questionnaire.

The first two components are necessary in that they affect both the structure and the content of the instrumentation. If a mail out procedure is selected the questionnaire must be comprehensive and self-explanatory. Telephone or personal interview procedures on the other hand, allow a trained interviewer to clarify questions or probe for additional information. The types and methods of analyses to be performed should also be decided prior to item development in order that data suitable to the analysis design are collected. These components are discussed in further detail in Step 4 and Step 5.

Questionnaire items should be developed to address the information needs identified in Step 1. Items may target such subjects as the relative cost or effectiveness of various activities, trends in service delivery, perceptions of barriers and effective strategies to overcome the barriers, coordination with other service deliverers, or local vs. State activities. There are two general forms that the items may take: open-ended or closed-ended. Closed-ended or

structured items are advantageous in that it is easier and less time-consuming for respondents to complete the items than open-ended questions. What is expected of the respondents is often clearer using a structured format. Also, it is easier to tabulate and analyze the responses to this type of survey form. However, of prime consideration to surveys used to identify activities for serving special populations is the fact that closed-ended questions define the range of input that can be obtained. Specifying the allowable responses to the items during questionnaire development requires considerable background research and frequently inhibits the identification of innovative service approaches by respondents. However, use of a rating or ranking scaling methodology with a closed-ended format allows for an efficient prioritization of the identified activities. An alternative approach, which capitalizes on the advantages of both formats is to employ an open-ended questionnaire with a subset of respondents. The activities identified by this survey can be categorized and form the basis for a structured instrument which can subsequently be used to survey a larger sample.

Other steps involved in the development of the draft questionnaire are integrating the items into an appropriate format and writing accompanying instructions for responding. The ordering of items should be such as to allow a smooth flow to the questionnaire, with transitional statements given in conversational form accompanying any shifts in content emphasis. Instructions must be clear, concise and provide respondents with some background for the purpose of the survey and how the results will be used. Any terms describing special populations or vocational education delivery systems should be defined in order that respondents have a similar frame of reference for responding.

A pretest of the instrumentation is necessary to determine whether it is capable of eliciting the desired information from respondents. The pretest may be accomplished with as few as 15 respondents, but these should be as similar

to the population surveyed as possible. If the instrument, as evidenced by the results of the pretest, is not producing the desired results, a number of potential problems in the survey design should be investigated. First of all, the instrument should be evaluated for item clarity and questionnaire format. Trends in pretest responses will reveal any items which are difficult to understand or which cannot be responded to. Likewise, trends will indicate problems with instructions or sequencing of the items. A second problem which may be uncovered through the pretest is an inadequacy in the population being sampled. If the respondents are found to be unable to identify activities for serving special populations it may be necessary to select a different types of respondent or resort to an alternative procedure for identifying activities.

Results of the pretest will generally flag items which should be rewritten or reordered prior to the actual survey. The length of time for administration or completion of the instrument will also be gauged from the pretest. When State agency staff are satisfied with the revised instrumentation (either through a self evaluation or an additional pretest) they may proceed with the next steps in the survey process.

Step 4: Conduct the survey

Dependent on the method of data collection selected (mail-out, telephone interview, personal interview), the means by which the survey is conducted will vary. The following considerations should be taken into account when selecting a data collection method and conducting the survey.

The mail-out method is generally the least expensive approach. The mail-out also allows the respondent to complete the questionnaire at his/her leisure more so than the telephone or in-person approach. The following points are important to remember in considering the mail-out method for administration:

- Dependent on the characteristics of the sample, the reading level of the instrument may be crucial.

- Instructions must be in sufficient detail to indicate who should complete the questionnaire and how.
- If there is not a high degree of interest and commitment on the part of respondents the return rate will be low.
- If automatic data processing is to be used, the information will need to be checked and coded before data entry.
- A postcard follow-up or a reminder with an additional copy of the questionnaire is necessary for the optimal return rate.
- Postage should be provided to respondents for the return of questionnaires.

The telephone survey generally costs more than the mail-out method in that interviewers must be trained and perhaps hired to administer the instrument, long distance calls are generally necessary, telephone numbers must be looked up, etc. A major advantage of the telephone approach is the person-to-person contact offered. Other considerations of the approach are:

- The types of individuals included in the sample may be difficult to reach by telephone.
- The length of time that a respondent can be kept on the telephone is limited--plan on absolutely no more than 40 minutes per interview.
- The method is usually more compatible with automatic data processing than the mail-out form.
- The volume of questions is not as important as the length of time involved.
- The person-to-person contact can allow better comprehension of the items through explanation by the interviewer and gives the interviewer a chance to probe for further information.
- The return rate will probably be no better than 65 percent.

The in-person method is usually the most expensive of the three methods in that it involves travel on the part of interviewers. Aside from that the considerations for this technique are similar to those for the telephone approach.

A distinct disadvantage of the method can be, depending on the population surveyed, the environment into which the interviewer must be sent.

Step 5: Process and Analyze Questionnaire Results

Preparation for the processing and analyses of the obtained data can begin as soon as the final form of the questionnaire is devised. The decision as to how to process the data and the congruence of items with information needs will have been accomplished in Step 3, so that propoer editing procedures and analyses plans can be established. The processing of the data should include, at a minimum, the following steps:

- Screen the questionnaire for completeness. Depending on the method of administration used, this can be accomplished during the interviewing. The agency may be forced to establish minimum completeness criteria for the inclusion of a questionnaire or item in the final data base.
- "Nonsense" responses (e.g., out of range response, nonconformance to skip patterns) should be screened out and reconciled before additional processing.
- In general, make sure that all questionnaires in the data set have logical responses to all item.
- In the case of open-ended items, a code scheme usually should be built if the data are to be automatically processed. If not, such items can usually be processed directly without resorting to a code, unless a numerical algorithm is involved.
- If automatic data processing is used, it is wise to perform a random check of about 10 percent of the computer records against the questionnaires themselves. If data entry errors manifest themselves in this process, the agency may wish to check more data records against the questionnaires.
- If automatic data processing is utilized, make sure that each questionnaire has a unique identification number so that it can be checked against its computer record.
- In as much detail as possible, account for the sample surveyed in terms of, for example, the number of potential respondents who refused to answer the questionnaire, the number who could not be located, the

number returned incomplete, the number complete, etc. This can be valuable information to the reader as well as to the agency in the planning of subsequent surveys.

The analyses of the survey responses should be kept as simple as possible. It would be best to consult with someone who thoroughly understands data and statistical methodology prior to the analysis of the data if such a person is not, in fact, charged with the overall project. It is important that the data fit the analysis plan in such a way as to provide meaningful and valid results. It is also, of course, of importance that inferences about the population under study not be made from insufficient sample size; it would be best to plan for standard error and confidence interval calculations along with the actual results-oriented analyses. In utilizing the survey method to identify activities for serving special populations, summary statistics will generally be sufficient for reporting the results. For example, the analyses may be planned to yield the response frequencies for individual items, medians and ranges of ranks and/or ratings and any cross tabulations of items that are considered related. Such statistics provide a descriptive summary of the results of the survey and a means for selecting from among the activities. If objective cost and/or effectiveness data are available, more sophisticated analyses, e.g., multiple regression or other multivariate analyses, could be utilized for predicting the success of various combinations of activities.

Many of the analyses to be used are planned before the actual conduct of the survey; however, in most survey research some unanticipated results occur. Thus, it is important that the analysis plan remain flexible throughout the data analysis process, and imaginative enough to account for unexpected relationships.

Step 6: Report Results

The results of the survey should be summarized in a report which can serve as a basis for decision makers in planning activities for delivering vocational

education to special populations. As documentation of the survey, the report should also include a description of the methodology, a discussion, and conclusions and recommendations.

Example Modifications of the Survey

In planning the survey there are a number of decision points which represent modifications of any one survey approach. As they are essential to the conduct of the survey procedure the modifications have been described and compared in the steps outlined above. The points where the process can be modified are:

- the population to be surveyed;
- the sample selection procedure;
- the format of the questionnaire items;
- the method of data collection.

For Additional Information

Procedural Guides:

Babbie, Earl R. Survey Research Methods. Belmont, CA: Wadsworth Publishing Company, Inc., 1973.

Kish, Leslie. Survey Sampling. New York: John Wiley and Sons, Inc., 1965.

Orlich, Donald C., Clark, P.A., Fagan, N.M., Rust, G.A. Guide to Sensible Surveys. Olympia: Washington State Commission for Vocational Education, Research Coordinating Unit, 1975.

Applications to Planning for Special Populations:

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Kumar, Vasant. Handicapped Persons in Wisconsin's Vocational, Technical and Adult Education Districts: Assessment of Educational Techniques and Identification of Barriers. Madison: University of Wisconsin, Wisconsin Vocational Studies Center, 1977.

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Schneck, Gerib R., Lerwick, L.P., & Copa, G.H. Assessment of the Prevalence and Service Need Requirements of Handicapped and Disadvantaged Students in Vocational and Technical Education Programs in Minnesota. Minneapolis: University of Minnesota, Department of Vocational and Technical Education, Minnesota Research and Development Center for Vocational Education, 1978.

DELPHI TECHNIQUE

DELPHI TECHNIQUE: OVERVIEW

The Delphi technique is a means of obtaining input regarding activities for serving special populations from a group of experts, without assembling the experts in a group setting. It is an iterative process of soliciting responses and providing feedback to respondents until a consensus or majority opinion as to the relative effectiveness of alternative activities is established. Dependent on the amount of information and the extent of consensus desired the Delphi can involve 2-5 rounds of questioning and analysis of responses. The first round consists of sending one or more questions, which address State agency objectives for serving special populations, to a representative sample of experts. The analysis and synthesis of the responses form the basis for items to be included in the second questionnaire. In the second round respondents are requested to review each of the activities (items); agree, disagree or ask for clarification on each of the activities; provide comments regarding any of the activities; add any additional activities; and rank the activities in order of importance. Feedback from the responses to the second questionnaire are then provided in the third round of the Delphi. This process continues until the desired information and degree of consensus are obtained; generally, three rounds are sufficient.

DELPHI TECHNIQUE: KEY CONSIDERATIONS

- Cost: The Delphi is a relatively inexpensive technique to implement. The major expense is SEA staff time which increases with the number of respondents and the amount of information desired. Additional costs include questionnaire reproduction, postage, and long distance telephone service.

- Staff: The Delphi requires the intermittent involvement of one staff member with some background in research methods. Additionally, two staff members knowledgeable of the State vocational education delivery system and the needs of the populations targeted by the Delphi should be available on a half-time basis to assist as necessary throughout the Delphi project. Limited clerical and secretarial involvement are also required.

- Time: The Delphi requires two to six months to complete dependent on the number of respondents, the number of rounds of questioning and the length of the questionnaires.

- Equipment and Facilities: No unique facilities or equipment are required to implement the Delphi unless the size of the respondent pool necessitates computer analysis of responses.

- Applications: The Delphi can be used to identify activities for serving any target population by simply changing the initial question(s) and the sample of respondents. It is particularly suitable when it is difficult to assemble individuals in a group setting and/or where there is diverse opinion as to the relative effectiveness of various mechanisms for serving special populations. It is also useful in situations where personality conflicts or dominations inhibit the group process.

- Participants: Selected respondents must possess suitable qualifications for answering the Delphi questions and exhibit an interest in participating in the process. This may require cooperation from LEAs, other State agencies, or outside groups and individuals, dependent upon the input desired.

- Side-Effects: Feedback provided by the Delphi serves to create an awareness and educate respondents as to the perceptions of colleagues and the concerns and intents of the State agency.

DELPHI TECHNIQUE: IMPLEMENTATION STEPS

Step 1: Define Information Needs

The first step in utilizing the Delphi technique is to outline the type or types of information which are needed to identify alternative programs, services or activities. Direction for this step is provided by the objectives developed in the previous planning stage. However, it is important that decision makers clarify what information would be necessary to select activities to achieve these objectives and how the information will be used. For example, an objective targeted to handicapped students might read: By Steptember 1, 1980, each local educational agency shall provide the necessary support services for all eligible individuals with exceptional needs (adapted from the California Five-Year State Plan, 1977, p. 3-35A). In order to achieve this objective, information is needed on the types of support services which are perceived to be the most effective in serving individuals with various handicapping conditions. Additionally, information is needed as to what types of activities the State agency could initiate to encourage the implementation of identified support services at the local level.

In defining information needs, consideration should be given to all objectives of the State agency. In some instances multiple objectives may have the same or similar information needs. Thus, duplication of effort can be eliminated by simultaneously collecting information on different objectives with similar data requirements.

The process of defining information needs should include all those individuals who will make use of collected data, e.g., planners, administrators, coordinators of services to special populations, or representatives of other State agencies. The process will then provide direction to the implementation of the procedural steps which follow.

Step 2: Select Respondents

Delbecq, et. al. (1975) suggest the following characteristics of respondents in a Delphi study:

- respondents feel personally involved in the problem of concern to the decision makers;
- respondents have pertinent information to share;
- respondents are motivated to include the Delphi task in their schedule of competing tasks; and
- respondents feel that the aggregation of judgments of a respondent panel will include information which they too value and to which they would not otherwise have access.

How and how many respondents are selected are dependent on the information needs identified in Step 1. Where decision makers desire information on innovative approaches for serving a target population a relatively small number (15-20) of experts could be selected through a nomination procedure. On the other hand, when information is desired on types of technical assistance which the State could provide to LEAs, a representative sample of local administrators, teachers, counselors, etc. should be chosen as respondents. Additionally, to be consistent with the MERQ, representatives of other agencies, e.g., vocational rehabilitation, corrections, special education, CETA prime sponsors, should be included in the Delphi process.

Once the respondents are selected they should be contacted by telephone to request participation in the study. If an insufficient number agree to participate, further nominations or sampling may be required.

Step 3: Develop and Mail Out First Questionnaire

This step can be conducted concurrently with Step 2. The first questionnaire in a Delphi study generally includes a cover letter and one or more general questions which are designed to satisfy the information needs identified in Step 1. Background information on the problem may also be provided.

The cover letter should convey the following (from Delbecq, et. al., 1975):

- a thank-you to the respondent for participating;
- an explanation of why his or her help is important for identifying activities;
- a delineation of how the results of the Delphi will be applied to planning for special populations;
- instructions for responding; and
- a response date.

The initial Delphi question(s) follows directly from the information needs. For the example objective provided in Step 1, an appropriate Delphi question could be phrased:

> What types of major barriers inhibit handicapped students from enrolling in and successfully completing vocational programs and being placed in related occupations? Please include the type of handicapping condition(s) which is affected by each of the identified barriers (orthopedically impaired, visually impaired, hearing impaired, mentally handicapped, etc.). For each barrier identified please list the modifications or support services which you perceive are most effective in overcoming the barrier. If possible, cite an example from your own experience in serving the handicapped of how the modification or service has been successful.

A form for responding, such as that portrayed in Figure 1 , should also be included with the questions.

Prior to mailing the questionnaire to the respondents, it should be pilot tested on a small sample of individuals with similar characteristics as those who will participate in the actual Delphi. Any problems experienced by the test sample should be resolved and modifications of the cover letter and/or questions made. To assure continued interest on the part of the participants, the questionnaire packet should be mailed shortly after initial contact with the respondents. If the response rate is low, a follow-up letter or telephone call may be necessary.

Figure 1

Sample Delphi Response Form

Barriers to Enrollment	Handicapping Condition	Potential Modifications/ Support Services	Example of Successful Service / Modification
Barriers to Completion			
Barriers to Placement			

Step 4: Analyze First Questionnaire

The results of the first questionnaire form the basis for items included in the second questionnaire. Similar responses are collapsed and reworded to convey the intent of different respondents. This can be accomplished by placing each response on a 3x5 card and sorting the cards into stacks of similar responses for each question. Each stack is then labelled according to the commonalities among responses.

Step 5: Develop and Mail Out Second Questionnaire

The set of labels derived in Step 4 are transformed into easily understood statements which compose the items of the second questionnaire. This questionnaire should also be pilot tested before use. Respondents are requested to:

- review each of the items (barriers, activities, etc.);
- agree, disagree or ask for clarification on each of the items;
- provide comments regarding any of the items;
- add any additional items; and
- rank the items in order of importance.

Again, a follow-up may be necessary to obtain sufficient returns.

Step 6: Analyze Second Questionnaire

Analysis of the second questionnaire involves the following:

- tallying the responses to each item and calculating the percentage of respondents who agreed and disagreed with the item;
- calculating the median priority ranking and range of rankings for each item;
- summarizing the comments provided for each item; and
- clarifying or eliminating items which were unclear to a large number of respondents.

At this point the State agency should evaluate the results to determine whether they are consistent with the information needs identified in Step 1. If the Delphi is not producing the needed information, modifications should be made prior to the development of questionnaire #3, e.g., stating the items in more general or specific terms.

Step 7: Develop and Mail Out Third Questionnaire

The third questionnaire consists of the item statements, the results of the second questionnaire (median and range of rankings and % agreement), and a summary of comments for each item. Again, the respondents are requested to indicate whether they agree or disagree with an item and to assign a ranking as to the importance of the item. The comments provide participants with a frame of reference regarding the summary of responses and may serve to clarify the intent of the item.

Step 8: Analyze Third Questionnaire

The third questionnaire is analyzed in the same manner as the second. Any additional comments or reactions provided by the respondents are incorporated with those obtained in the second questionnaire. These final results are the basis for identifying successful activities for serving special populations. The extent of agreement with the items indicates the potential effectiveness which the activity may possess in enhancing the delivery of vocational education to special populations. The rankings indicate the relative effectiveness of the activities (e.g., for overcoming particular barriers) and thus provide a means for selecting from among the alternatives identified in the earlier questionnaires. Comments provided throughout the Delphi Process provide more substance to the identified activities and may also illuminate some of the difficulties and benefits associated with alternative delivery approaches.

Step 9: Summarize Results

The results of the Delphi process should be summarized in a report which can serve as a basis for decision makers in planning activities for delivering vocational education to special populations and as a vehicle for providing feedback to participants. Documentation of the study should include an introduction, a description of the methodology, a discussion and conclusions and recommendations.

Example Modifications of the Delphi

The previous discussion has focused on a Delphi approach which utilized three rounds of questionnaires. Dependent on the information needs of planners more or fewer rounds could be employed. For example, if the major service strategies of interest are identified through a literature review or other means, the Delphi process could be initiated with the second questionnaire. In this case the Delphi would serve primarily as a means for selecting the most effective service strategies. On the other hand, if further consensus and clarification are desired, the Delphi team may wish to include a fourth or even fifth round of questionnaires. Respondent and analyses times could be minimized by only including those items which needed further clarification or were still subjects of considerable disagreement. Or an alternative is to send later editions of the questionnaires to only those respondents whose opinions differed from the majority.

Another modification of the basic Delphi technique is to apply it to a group setting. Using this approach participants generate activities in a series of small groups. They are then mailed the results of the small group sessions and requested to rank or agree/disagree with the resultant items (activities). The groups may then be reassembled for further clarifications and expansion of the prioritized activities.

These are only example modifications of the Delphi. The technique essentially represents a means for obtaining a majority or consensus of expert or representative input to decision making through providing feedback of results. As such, the Delphi can be modified in a number of ways to suit the information needs of decision makers.

For Additional Information

Procedural Guides:

Dalkey, Norman C. Delphi. Santa Monica, CA: Rand Corporation, 1967.

Delbecq, Andre L., Van de Ven, A.H., & Gustafson, D.H. Group Techniques for Program Planning: A Guide to Nominal Group and Delphi Processes. Glenview, IL: Scott, Foresman and Company, 1975.

Applications to Planning for Special Populations:

Asser, Eliot S., Davis, S.C., Hill, J.A., Laffey, J.M., Olson, G.E., Schreiber, S.T., & Schwartz, H.S. Progress Beyond Access: A Technical Report in Support of a Five-Year and Annual State Plan for Sex Equity in Vocational Education in Illinois. Chicago: Roosevelt University, College of Education, Research and Development Center, 1978.

McClellan, L. Dean & Newton, R. Forecasting and Analyzing Needs and Barriers in Kentucky Vocational Education. Final Report. Louisville: University of Kentucky and Morehead State University, 1977.

LITERATURE SEARCH

LITERATURE SEARCH: OVERVIEW

Numerous documents have been published describing activities which are potentially successful for providing vocational services to various special populations. Such documents include the results of research studies, published handbooks or guidelines for serving special populations, and descriptions of exemplary programs. Documents of interest can be identified through a methodical search of the literature. This could entail library searches; computerized searches; contacts with other State agencies, National and State vocational agencies/councils/organizations, and organizations representing special populations; or accessing curriculum data banks or resource centers. The search produces a range of potential activities for serving special populations. Selection from among these activities can be accomplished through an evaluation of alternatives by State agency staff. Alternatively, the potential activities can form the basis for a survey of local educators as to their perceptions of the relative effectiveness of the alternatives.

LITERATURE SEARCH: KEY CONSIDERATIONS

- Cost: A literature search is a relatively inexpensive means of identifying potential activities for serving special populations. Expenses can include staff time, computer searches, purchase of publications and long distance telephone service. Each of these expenses varies dependent on the breadth and depth of the literature search and the amount of available information. Use of computerized searches is the most cost-effective means of identifying relevant documents.

- Staff: A literature search requires at least one full-time staff member to initiate the search and screen documents for applicability. The individual responsible for conducting the search should have some knowledge of library science and be capable of exploring leads for further documentation. Additional staff are needed to evaluate and select from among the alternative activities identified from the literature. This task requires 3-4 State agency personnel on a part-time basis who are familiar with the State and local education system and the characteristics of the population(s) to be served.

- Time: The time required to complete a literature review ranges from approximately 3 weeks to 2 months dependent on the depth and breadth of the search. Analysis and selection from among the alternatives require an additional 1-3 weeks.

- Equipment and Facilities: The literature search may require access to library and/or computer search facilities.

- Participants: Dependent on the type of search implemented the technique may require limited cooperation from State agencies, organizations or other sources of documentation.

- Applications: Use of a literature search technique for identifying activities can be applied to a majority of special populations; however, the amount and quality of available literature varies for the different populations in question. Information on serving handicapped and disadvantaged populations is plentiful and up-to-date. Literature regarding vocational education services to women is becoming increasingly ample. Other populations, such as limited English speaking and correctional inmates, have been the subjects of a limited amount of documentation.

- Side-Effects: A literature review does not inspire the commitment to serving special populations as those techniques which involve LEAs and other outside agencies/groups in the identification and decision-making processes.

LITERATURE SEARCH: IMPLEMENTATION STEPS

Step 1: Identify Topical Areas

The first step in implementing this procedure is to define those topical areas to be targeted by the literature search. Broad topical areas can be identified directly from the State agency objectives of concern, e.g., mechanisms for improving the delivery of vocational education to disadvantaged students. Alternatively, the objective can be broken down into smaller program components based on more specific information needs for identifying activities. For example, in order to satisfy an objective related to equal access to vocational education programs by both sexes, the State agency may be interested in identifying effective guidance and placement services for women entering non-traditional program areas. Such topical and sub-topical areas then form the basis for identifying potential types and sources of information and conducting the search.

Step 2: Identify Potential Types and Sources of Information

In addition to sources uncovered through a traditional library search there is a variety of other potential sources of literature related to serving special populations. Which of these sources is accessed is dependent on the types of documents suited to the information needs of the State agency. To obtain information on a broad topical area the State may wish to initiate a computer search and then follow-up on identified citations. For a more targeted search, such as identifying teaching materials for the handicapped, a different approach would be taken. In this case resource directories or other sources of curriculum information could be located through a national search of regional curriculum resource centers. These materials could be supplemented by telephone contacts with other State agencies or administrators of exemplary programs. A portrayal of the types of documents which the State may be interested in obtaining and a

listing of potential sources of these documents is provided in Table 1 . Double entries (XX) in the table indicate excellent sources of the particular document type. A single entry (X) signifies a potential source of the document type. This is followed by some examples of documents related to serving special populations that can be found in the literature. (See Table 2). After reviewing the examples the State agency should be better able to define the types of documents that are most suited to its needs and to access the appropriate sources of literature.

Step 3: Conduct Search

It is recommended that at least two of the available sources of literature be accessed. This is to assure adequate coverage of the topical areas of interest. For example, although a computerized literature search is capable of generating a breadth of documentation, it may not reveal the most recent literature on the subject. That is, there is a time lag between when a document is published and when it becomes an element of a computerized information retrieval system. Other sources are limited in their types of holdings. Thus, the most effective search accesses a variety of information sources.

Once the literature search is initiated, identified documents and sources of information begin to multiply. Most publications contain references to similar documents; these are often useful to follow-up. Telephone contacts, if used to locate relevant documents, expand in a similar fashion. The investigation of these added sources of documents should continue until sufficient literature has been obtained to provide a range of alternative programs/services/activities for each topical area of interest.

Step 4: Synthesize Results

This step essentially consists of reviewing materials obtained in the search and extracting pertinent information from the documents. As documents

Table 1

Potential Sources of Documentation

Potential Sources \ Document Types	Books/ Handbooks	Research Reports	Federal Documents	State Documents	Journal Articles	Biblio-graphies	Resource Directories	Pamphlets, Brochures, Etc.
University Libraries	X		X		XX			
Private Collections (NCRVE, AVA, NACVE)	X	X	X		X	X	X	X
Federal Depository Libraries	X		XX					
Computer Searches (NTIS, ERIC)	X	XX	X	X	X	X	X	
Curriculum Resource Centers	X			X			XX	
Research Coordinating Units	X	X		X	X			
Bibliographies/ Newsletters	X	X	X	X	X	X	X	X
Telephone Contacts	X	X	X	XX			X	XX

XX Excellent Source
X Possible Source

Table 2

Example Documents Pertaining to Vocational Educational Services for Special Populations

Document Types	Example Documents
Books/Handbooks	Dahl, Peter R., Appleby, J.A., & Lipe, D. Mainstreaming Guidebook for Vocational Educators. Salt Lake City, UT: Olympus Publishing Company, 1978, 352 pp. Hull, Marc E. Vocational Education for the Handicapped: A Review. Information Series No. 119, Columbus, OH: The Ohio State University, ERIC Clearinghouse on Career Education, 1977, 67 pp. Rice, Eric, & Etheridge, R. Strategies to Eliminate Sex Stereotyping and Sex Bias: An Administrators' Manual. Chapel Hill, NC: System Sciences, Inc., 1977, 194pp. Vetter, Louise, Burkhardt, C., & Sechler, J. A Guide for Vocational Education Sex Equity Personnel. Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education, in print, 94 pp. Wall, James E. (Ed.). Vocational Education for Special Groups. Sixth Yearbook. Washington, DC: American Vocational Association, 1976, 351 pp.
Research Reports	Cameren, R. James, & Others. Guidelines for Improvement of Vocational Programs and Resources to Serve Needs of Handicapped Students. Final Report. Englewood, CO: Performance Management Specialists, Inc., 1975, 271 pp. Kumar, Vasant. Handicapped Persons in Wisconsin's Vocational Technical and Adult Education: Assessment of Educational Techniques and Identification of Barriers. Madison, WI: University of Wisconsin--Madison, Wisconsin Vocational Study Center, 1977, 89 pp. Lewis, Morgan V., & Kalterider, L.W. Attempts to Overcome Sex Stereotyping in Vocational Education. University Park, PA: The Pennsylvania State University, Institute for Research on Human Resources, 1976, 273 pp. Women's Rights Project. How to Erase Sex Discrimination in Vocational Education. New York, NY: American Civil Liberties Union, Women's Rights Project, 1977, 77pp.

Document Types	Example Documents
Federal and State Documents	Mangum, Garth, & Walsh, J. Employment and Training Programs for Youth: What Works Best for Whom? Washington, DC: U.S. Department of Labor, Employment and Training Administration, Office of Youth Programs, May 1978, 207 pp. Parks, Jeanne S. Education in Action: 50 Ideas that Work. Washington, DC: U.S. Government Printing Office, 1978, 128 pp. U.S. Department of Health, Education and Welfare, Office of Education; and U.S. Department of Labor. The Status of Bilingual Vocational Training, Fiscal Year 1977. Washington, DC: Author (initial), 1978, 38 pp. Duffy, Nishma I. Guidelines: A Checklist Approach for Evaluation Your Program for Sex Equity. Concord, NH: New Hampshire State Department of Education, Division of Vocational-Technical Education, 1978, 13pp. Iowa State Department of Public Instruction, Special Needs Section. Special Needs Programming in Iowa: Vocational Education for the Disadvantaged and Handicapped, 1972-1974. Des Moines, IA: Author, 1974, 217 pp. Tennessee State Department of Education. Guidelines for Special Programs: VIP/VAP (Vocational Improvement Program/Vocational Advancement Program). Nashville, TN: Vocational Technical Program Services, undated, 49 pp.
Journal Articles	Naiman, Adeline. What to do about sex bias in the curriculum. American Education, April 1977, 13, 3, 10-11. Ray, M. Douglas. Problems in serving handicapped users of vocational education. The Wisconsin Vocational Educator, 1974, 1, 1, 11-14. Schenck, John P. Sexism in textbooks: A guide to detection. American Vocational Journal, October 1976, 51, 7, 42-45. Tindall, Lloyd W. Breaking down the barriers for disabled learners. American Vocational Journal, November 1975, 47-49.
Bibliographies	Heath, Walter D ., & Oglesby, E.H. State Planning for the Delivery of Vocational Education to Special Populations, A State-of-the-Art Report, Volume II: Annotated Bibliography. Raleigh, NC: CONSERVA, Inc., 1979, 117 pp. Koba Associates, Inc. Women in Non-Traditional Occupations--A Bibliography. Washington, DC: Author, 1976, 187 pp.

Document Types	Example Documents
Bibliographies	Magisos, Joel H., & Stakelon, A.E. Special Needs Populations. Annotated Bibliographies on Bilingual, Correctional, Migrant, and Handicapped Populations with Unique Vocational Education Needs. Bibliography Series No. 33, Columbus, OH: The Ohio State University, Center for Vocational Education, 1975, 142 pp.
Resource Directories	Harway, Michele, & Others. Sex Discrimination in Guidance and Counseling. Annotations (Volume 2). Los Angeles, CA: Higher Education Research Institute, Inc., 1976, 177 pp. Maloney, Patricia. Resources of Mainstreaming Exceptional Students in Vocational Education Programs. Palo Alto, CA: The American Institutes for Research in the Behavioral Sciences, 1978, 80 pp. Tindall, Lloyd W., & Others. A Bibliography of Materials for Handicapped and Special Education. Second Edition. Madison, WI: Wisconsin University, Center for Studies in Vocational and Technical Education, 1978, 110 pp. Wentling, Tim L., & Others. Resource Directory for Teacher Education in Vocational Special Needs. Minneapolis, MN: University of Minnesota, Department of Vocational and Technical Education, Minnesota Research and Development Center for Vocational Education, 1978, 80 pp. Women's Educational Equity Communications Network. Hispanic Women and Education: Annotated Selected References and Resources. San Francisco: Far West Laboratory for Educational Research & Development, 1978.
Pamphlets, Brochures, etc.	Building Bridges, Increasing Access to Vocational Education through the Preparation of Bilingual Vocational Instructors. Boston, MA: Fitchburg State College Bilingual Vocational Teacher Training Program. Placement Preparation Program, A New Approach to Job Preparation for the Disabled and Disadvantaged. New York, NY: ICD Rehabilitation and Research Center. Special Cooperative Vocational Education. Springfield, IL: Illinois Office of Education, Department of Adult, Vocational and Technical Education.

are identified they are reviewed in terms of:

- their applicability to the objective(s) of concern, and
- the breadth and depth of information presented on service approaches.

Various types of descriptive and evaluative information are then extracted from those documents considered relevant to State objectives. This should include:

1. Descriptions of the activities
   - Service mechanisms
   - Requirements for delivery
   - Environmental context
   - Characteristics of the target populations
2. Evidence of success
   - Outcome measures
   - Quality of research methodology

Step 5: Select from among alternatives

In this step information abstracted from the documents is compared with various State and sub-state characteristics, constraints and resources in order to identify those activities that are feasible to implement and possess the greatest potential for success. The alternatives are narrowed by first evaluating descriptions of the activities in terms of State characteristics. For example, the populations targeted by the activities are compared with needs identified in the State. Those that are inconsistent with State needs are then eliminated from the potential alternatives. Next, the requirements for delivery of each of the remaining alternatives are compared with State and local constraints and resources (e.g., budget, staff, equipment and facilities, attitudes). Those activities whose requirements exceed State resources are further

evaluated as to: 1) whether they could be effectively adapted to better suit State/local constraints, or 2) whether existing resources could be modified or used more effectively in order to accommodate a potential activity. This comparison further narrows the range of feasible activities for the State or local agencies to implement.

Thirdly, the relative effectiveness of the remaining alternatives is evaluated. Some documents may include objective measures of the activity's success in serving special populations. Others may require a subjective analysis of the activity based on experience in providing vocational education to a particular special population. This could entail evaluating the alternatives on various dimensions of effectiveness, such as:

- the number of individuals to be served;
- the anticipated completion rate;
- anticipated placement rate;
- usefulness over time; and
- beneficial side effects.

Dimensions to be included in this analysis can be extracted from the objective(s) addressed by the activity.

Finally, the alternatives are compared in terms of their relative costs and effectiveness. Given similar costs, the most effective or potentially effective activities would be implemented. However, given varying costs, judgments must be made as to what degrees of increased effectiveness warrant the consequent additional costs imposed on the agency. The most cost-beneficial alternatives are selected for implementation at the State or local levels.

Example Modifications of the Literature Review

The literature review is not a highly structured technique for identifying programs, services, and activities. As such, the steps presented here can be

modified in any way to better suit State agency needs. Additionally, a simplified method for selecting from among the alternatives has been presented. The State agency may wish to employ a more formal cost-benefit analysis for selecting activities. Alternatively, the information collected through the literature review could be entered into a group procedure for decision making or form the basis for a structured-item survey of vocational educators for their perceptions of service requirements and relative effectiveness.

For Additional Information

Procedural Guides & General References:

Guttentag, Marcia. Subjectivity and its use in evaluation research. Evaluation, 1973, 1, 2, 60-65. (Strategy selection).

Tanner, C. Kenneth. Designs for Educational Planning. Lexington, MA: Heath Lexington Books, D.C. Heath and Company, 1971. (Strategy selection).

Drewes, Donald W., & Others. State Planning for the Delivery of Vocational Education to Special Populations, A State of the Art Report, Volume I: Planning Procedures. Raleigh, NC: CONSERVA, Inc., 1979. (Literature search).

Hughes, James H., & Rice, E. Needs Assessment Procedure: Mainstreaming Handicapped, Volume II: A Manual for Vocational Education Administrators. Chapel Hill, NC: System Sciences, Inc., 1978, (Strategy selection).

NOMINAL GROUP TECHNIQUE

NOMINAL GROUP TECHNIQUE: OVERVIEW

The Nominal Group Technique (NGT) is a structured group process which can facilitate the generation of a large number of activities for serving special populations and the selection of the most effective activities for satisfying State vocational education objectives. It is a systematic means of soliciting individual responses and aggregating group judgments through mathematical rating or ranking rather than discussion or debate. Activities pursuant to State objectives of interest are generated independently by each group member. They are then solicited and recorded, one from each member at a time, until the lists of activities from all members have been disclosed in their entirety. Following this is a brief discussion, for clarification purposes, of each activity on the group list. Group members prioritize the activities by ranking or rating the activities as to their relative effectiveness.

The final steps of the group process depend upon the number of groups participating. If there is but one group, the preliminary voting is followed by a brief discussion of results and a final voting. When more than one group is involved, a master list is prepared combining the results for each group. There is a general discussion of the master list for purposes of clarification and additions, followed by a final vote.

NOMINAL GROUP TECHNIQUE: KEY CONSIDERATIONS

- Cost: The Nominal Group Technique typically involves minimal expense for implementation. Factors contributing to the expense are 1) staff time, 2) meeting room charges (if any), 3) supplies (minimal) and 4) location of the participants. The number of staff required depend directly upon the number of groups involved in the nominal process. Typically, one staff member per group is sufficient to serve as both leader and recorder. If the participants are located out of town, other expenses may include long distance phone calls and travel reimbursements.

- Staff: The Nominal Group Technique requires that at least one staff member be trained in leading the group(s) through the identification of activities. If there is more than one group, the option exists to have 1) one overall group leader and individual group recorders or 2) leaders for each small group. Leadership skills include understanding the process, having a strong background in vocational education and the special population under consideration and possessing the ability to maintain control over a group of people. The nominal group team will need to be involved for at least two days in preparatory tasks and one day for implementation of the procedure.

- Time: Time considerations in implementing NGT include 1) physical preparation time (arranging a meeting room and gathering supplies), 2) selecting and contacting the appropriate persons to serve as participants, 3) completing the design tasks (identifying the agency's information needs and developing and piloting alternative nominal questions), and 4) conducting the group meeting. Dependent on the difficulty in identifying participants and scheduling the meeting, the preparatory tasks (1,2, & 3) require one to four weeks (calendar time) to complete. The minimal time for completing the group process is 1 day.

- Equipment and Facilities: A large enough meeting room to accommodate the number of participating groups is required for implementing the Nominal Group Technique. Suggested supplies include a flip chart and felt pen for each group, approximately seven 3x5 cards for each participant, pencils and paper.

- Participants: In order to effectively complete the nominal group process, it is essential that participants share a common frame of reference so that they can communicate ideas. Participants must also share an interest in the provision of vocational education services to the special population and be willing to attend a highly structured group meeting.

- Applications: The Nominal Group Technique can be used to identify activities for any target population by adjusting the nominal question and selected participants to fit the population. The technique is useful for pooling individual judgments when a diversity of opinion exists. It is particularly suitable to determine solutions to a singular problem area such as that targeted by one or more objectives.

- Side-Effects: The Nominal Group Technique guarantees balanced participation among members and restricts domination by those individuals that are more expressive or have more authority. NGT also serves to create an awareness among the participants of State and national concerns regarding the special population and of the perceptions of their professional associates. Participation in the nominal group process tends to promote interest in the delivery of services to the special population.

NOMINAL GROUP TECHNIQUE: IMPLEMENTATION STEPS

Step 1: Define Information Needs

The first step in utilizing the Nominal Group Technique is to outline the type or types of information which are needed to identify alternative programs, services or activities. Direction for this step is provided by the objectives developed in the previous planning stage. However, it is important that decision makers clarify what information would be necessary to select activities to achieve these objectives and how the information will be used. For example, an objective targeted to handicapped students might read: By September 1, 1980, each local educational agency shall provide the necessary support services for all eligible individuals with exceptional needs (adapted from the California Five-Year State Plan, 1977, p. 3-35A). In order to achieve this objective, information is needed on the types of support services which are perceived to be the most effective in serving individuals with various handicapping conditions. Additionally, information is needed as to what types of activities the State agency could initiate to encourage or facilitate the implementation of identified support services at the local level.

In defining information needs, consideration should be given to all objectives of the State agency. In some instances multiple objectives may have the same or similar information needs. Thus, duplication of effort can be eliminated by simultaneously collecting information on different objectives with similar data requirements.

The process of defining information needs should include all those individuals who will make use of collected data, e.g., planners, administrators, coordinators of service to special populations, or representatives of other State agencies. The process will then provide direction to the implementation of the procedural steps which follow.

Step 2: Select Participants

It is recommended that each nominal group be composed of 5-9 members. The number of groups to be included in the process is dependent upon the specificity of the information needs of the State agency and the variety of input desired. For the example provided in Step 1, a number of participants would be selected in order to adequately represent the interests of each type of handicapping condition.

Delbecq, et. al. (1975) suggest the following characteristics of participants in the NGT:

- participants have a strong interest in the problem of serving the special population;
- participants have knowledge of and experience with the special population; and
- participants share a similar enough frame of reference so that they can communicate effectively with one another.

The individuals selected for participation in the nominal group process are dependent on the special population under consideration. As indicated in the MERQ for planning, individuals representing other State agencies involved in the delivery of services to the special population and local education agencies should be included in the identification of activities. One way to select participants is through a nomination process. State agency personnel can select from among those persons nominated according to the characteristics described above. Once the appropriate persons have been identified, they should be contacted and their time schedules coordinated for the meeting.

Step 3: Prepare and Pilot the NGT Question

The NGT question is the basis of the nominal group process; the effectiveness of the results depend largely on the quality and focus of the question. The NGT question follows directly from the information needs identified in Step 1. For the example objective provided in that step, an appropriate question could

be phrased:

> What types of modifications or support services do you view as most effective in providing vocational education to handicapped individuals? Please include the type of handicapping condition(s) for which the service is appropriate.

In this example, responses will vary substantially dependent on the type of handicapping condition. Alternatively, each type of handicap could be addressed by a separate NGT question:

> What types of modifications or support services do you view as most effective in providing vocational education to individuals with visual impairments?, etc.

It is suggested that several alternative questions or sets of questions be developed so that during the pilot testing it can be determined which is most appropriate for eliciting the desired information.

After the NGT questions have been developed, the next task is to pilot test them with a sample group(s). The sample group(s) should resemble as closely as possible the groups that will participate in the actual activity selection process. Responses to each question are compared to determine which question most effectively satisfied the State agency's information needs. Upon completion of the pilot test, any necessary modifications should be made.

Step 4: Generate Activities

At the onset of the group meeting, participants are given an explanation as to the purpose and importance of the meeting and the procedural steps to be followed for generating activities are outlined. Participants are divided into groups of from 5 to 9 members. If separate NGT questions have been developed for populations with various conditions (e.g., handicaps), it is advantageous to divide the participants into homogeneous groups, each receiving the appropriate question. With a single NGT question, heterogeneous groups may be more desirable. Participants are then presented the NGT question in written form and asked to work silently and individually on their responses to the question.

The time allotted for this step depends on the breadth of the question and is regulated by the group leader so as to maintain control over the length of the meeting.

Step 5: Record and Lead Discussion of the Activities

The activities independently generated by participants are recorded by each group leader in a round robin fashion. Activities are solicited and recorded on a flip chart, one from each participant at a time, until the lists of activities from all members have been disclosed in their entirety. After the activities are recorded on the flip chart, each one is discussed in turn. This discussion is mainly for purposes of clarification of meaning or rationale, rather than a debate as to the relative effectiveness of various activities. Therefore, it is necessary for the group leader to maintain control over the discussion to ensure that no activity is neglected while others receive greater focus. For each activity listed, group members are asked to provide their impressions of what the activity entails and the logic behind its inclusion on the list. Differences of opinion can be stated, but the group leader must see to it that they are merely recorded and not argued over.

Step 7: Prioritize Activities

In determining the priority of the alternative activities, group members independently select 5 to 7 of what they consider to be the most effective. Next, they rank those activities selected from one to five.

The ranking can be done through the use of 3x5 cards. Group members individually select the 5 (or 7) most effective activities and write each in the middle of a 3x5 card. The activities are then ranked from 1 to 5, with 1 indicating the least important and 5 indicating the most important. The cards are collected and the votes are tallied on the flip chart for review. An aggregate group priority ranking is calculated by multiplying the number of times the

activity was ranked by the sum of the ranks and ranking the products. An example of this is provided in Table 3 .

Table 3

Group Rankings and Prioritized Goals

Activity Number	Ranks	Number of Times Ranked	Sum of Ranks	Product of No. of Ranks X Sum	Group Priority
1	4,5,2,5,5	5	21	105	2
2	1,2,1,1	4	5	20	5
3	3,3,2,3	4	11	44	3
4	2,1,4,2	4	9	36	4
5	5,4,5,4,5	5	23	115	1
6	2,1,3	3	6	18	6
.					
.					
.					

Step 8: Lead Discussion of the Prioritization Results

If there is only one group participating in the process, discussion occurs immediately after the recording of results on the flip chart. Again discussion is for clarification purposes only, not debate. This discussion can reveal similarities in members' criteria for ranking and clear up any problems due to misunderstanding or misinformation.

If more than one group is involved, group leaders or recorders combine all group priority activities into a master list. For the example presented in this discussion, distinctions between activities for varying handicapping conditions are retained. All the group members then participate in a discussion of the

priority activities. Group members may suggest the addition of any activities they deem appropriate.

Step 9: Prioritize Activities

The same procedures as presented in Step 7 are followed. If more than one group is involved in the NGT, the groups are combined for the final prioritization. In our example, the number of handicapping conditions which the activity addresses should be included as a consideration in the prioritization process.

Example Modifications of the Nominal Group Technique

In cases where there is only one group participating in the activity identification process, the Nominal Group Technique can be concluded at Step 7. However, Delbecq, et. al. maintain that steps 8 and 9 increase "judgmental accuracy," and for that reason it is desirable to include them. During the discussion preceding preliminary prioritization, differences due to unequal information, misinformation or a misunderstanding of the activity's meaning can be clarified. The additional clarification provided in Step 8 can result in a more accurate final prioritization of activities in Step 9. Steps 8 and 9 are essential in those cases where the activities of more than one group must be combined.

An alternative means of determining priority activities for achieving objectives is to employ a rating rather than ranking procedure. This facilitates the prioritization process when there are a large number of activities to select from. Using a rating technique participants rate their perception of each activity's effectiveness (e.g., on a scale from 1 to 5, with 5 representing a highly effective activity). Participant ratings can then be averaged, and those activities with the highest mean (or median) effectiveness ratings are selected for implementation.

For Additional Information

Procedural Guides and General References:

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Applications to Planning for Special Populations:

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CHAPTER TWO

ALLOCATION OF RESPONSIBILITY

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ALLOCATION OF RESPONSIBILITY

After programs, services and activities for serving special populations are identified, it is necessary to allocate responsibility for their implementation to the most appropriate level of, type of, and specific institution. The allocation of responsibility entails a designation of the agencies or institutions which will be eligible for funding to support the provision of those services, programs or activities necessary for the attainment of objectives. It is thus a prelude to funding and takes into consideration the capabilities of agencies and institutions and the characteristics of the populations they serve.

Two alternative procedures for allocating responsibility are presented in this chapter. The first procedure describes the use of requests for proposals to allocate responsibility to one or more institutions or agencies for performing identified activities. Using this method, competitive bids are solicited from eligible agencies and evaluated on a number of quality criteria in order to assign responsibility. The second alternative allocates responsibility based on the distribution of needs as assessed in the second MERQ component. Such an approach can be utilized to determine eligibility for the conduct of specific activities or to assign responsibility for an activity to an individual institution. Descriptions of the alternatives follow.

COMPETITIVE BIDS

COMPETITIVE BIDS: OVERVIEW

The competitive bid procedure can serve as a means for simultaneously allocating responsibility and funds to LEAs, other service deliverers, research firms or other governmental agencies for conducting activities purusant to State agency objectives for serving special populations. The procedure consists of preparing one or more Requests for Proposals (RFPs), which describe the activities to be performed and provides instructions to prospective bidders. The RFPs are then distributed to agencies and institutions that are eligible and/or qualified to perform the activities. Based on the cost-effectiveness of the alternative proposals received in response to the RFP and other evaluative criteria, one or more contracts are awarded for the conduct of the proposed projects.

COMPETITIVE BIDS: KEY CONSIDERATIONS

- Cost: The use of competitive bids to allocate responsibility for activities pursuant to serving special populations does not involve any major expenditures. The primary expense is State agency staff time for preparing RFPs and possibly the costs of reviewing proposals. Additional costs include RFP printing and reproduction, postage, and the expense of conducting a pre-proposal conference, if applicable.

- Staff: Staff requirements for using competitive bids include short-term participation by personnel with expertise in the technical area addressed in the RFP and personnel representing the special population(s) targeted by the RFP. "Short-term" varies dependent upon the amount of information provided in the RFP and the number of RFPs issued; it could range from 2 hours to 2 weeks. State agency staff may also participate in the review of proposals which generally requires 1/2 to 4 days per RFP, dependent on the number of proposals received.

- Time: In addition to the time required to prepare RFPs and review proposals, at least 3 weeks should be allowed for bidders to prepare proposals. Delays may also be experienced in finalizing the project and signing the contract(s). Thus, the minimum time to complete the allocation process is 5 weeks.

- Equipment and Facilities: No unique equipment or facilities are required to utilize this procedure.

- Participants: The success of the competitive bids technique is founded on an interest in the field in the subject addressed by the RFPs.

- Applications: The competitive bid approach is primarily used to allocate responsibility for activities supported by Federal program improvement funds. It can also be (and is) utilized to allocate activities supported by Federal basic grant and State funds. It can be successfully applied for vocational education activities targeted to any special populations.

- Side-Effects: The use of the RFP method creates an awareness in the field of activities and priorities of the State agency. The competitive nature of the procedure may create hostilities or resentment among bidders.

COMPETITIVE BIDS: IMPLEMENTATION STEPS

Step 1: Prepare Request for Proposals

The first step in using this method to allocate responsibility for programs, services and activities is to prepare in written form one or more Requests for Proposals (RFP). Each RFP describes an activity or group of activities that the State agency has identified as an effective strategy for achieving its objectives, in addition to other information useful to prospective bidders. This typically includes:

- Background information and rationale for the project
- Project objectives
- Description of tasks to be performed and products to be delivered
- Time frame for completion of the project
- Funds available
- Proposal submission date
- Listing of eligible recipients
- Guidelines and specifications for preparing technical and cost proposals
- Proposal review criteria
- Application agreements/assurances

Dependent on the type of project or activity addressed by the RFP, bidders should be required to provide any number of the following in a proposal:

- Abstract
- Itemized budget
- Narrative description of the project
- Needs and/or enrollment data
- Objectives

- Procedures of implementation
- Description of proposed deliverables
- Management plan
- Evaluation plan
- Dissemination plan
- Staff capabilities and experience
- Institutional or organizational capabilities and experience
- Assurances of compliance with State and Federal regulations

Step 2: Distribute RFP to Prospective Bidders

In this step the RFP is distributed to those agencies, institutions and/or organizations that are eligible to bid for the project. These could include LEAs, private institutions, research organizations and other State and local governmental units. Additionally, the State agency may wish to conduct a bidders conference to clarify the intent of the RFP(s) and provide further instruction in proposal preparation.

Step 3: Review and Evaluate Proposals

Proposals or bids that are received in response to the RFP are reviewed and evaluated on a number of decision criteria in order to allocate responsibility for the conduct of the project(s). This can be performed by State agency staff or through the use of outside reviewers, such as educators, researchers or members of the State Advisory Council. If State agency staff are used to review proposals, the review team should include representatives of the special population addressed by the RFP (e.g., sex equity coordinator, special needs consultants) and staff members with technical expertise in the functional area targeted by the RFP. An effective evaluation procedure is the use of a point system. Using this system State agency staff assign points to each of the review criteria, based on the impact that the agency wishes the criterion to have

in determining the successful bidder(s). For example, Procedures of Implementation may be assigned 20 points, Management Plan assigned 10 points, Capabilities and Experience assigned 20 points, etc. These points represent a maximum score which any particular proposal could receive during the evaluation process. Reviewers then evaluate proposals by scoring each section from zero to the maximum number of points based on quality. Summing the points over the sections and averaging across reviewers yields a total score for each of the proposals. Those proposals with the highest scores are then further evaluated as to their relative costs, and the most cost-effective proposal(s) is awarded the grant or contract. If no proposals receive what the State agency considers an acceptable score or none is within the budget, the agency might choose to not award the contract. Alternatively, the State can ask selected bidders to revise the technical and/or cost sections of their proposals and re-submit a best and final offer.

Example Modifications of the RFP Method

The steps outlined above principally addressed the RFP method as it applies to allocating responsibility for program improvement activities, e.g., research, exemplary and innovative programs, curriculum development and personnel training. RFPs can also be used to allocate responsibility for regular programs and support services for special populations. In this case eligible bidders are limited to those institutions which have administrative control over vocational education programs. Factors influencing decision making would include: evidence of need for the activity, objectives of the activity, staff and institutional competencies and experience, cost, degree of involvement with other service agencies, relative financial ability of the proposer or applicant, and number or concentration of low-income families and special population members.

For Additional Information

Applications to Planning for Special Populations:

The Commonwealth of Massachusetts, Department of Education. Fiscal Year 1979 Request for Proposals, Occupational and Vocational Education Programs Under P.L. 94-482. Boston: Author, 1978.

State of Alabama, Department of Education. Request for Proposal, RFP Number 780025, Model Programs for Eliminating Sex Bias and Sex-Role Stereotyping. Montgomery, AL: Author, 1978.

State Board of Education, Illinois Office of Education. Request for Program Improvement Proposals in Vocational Education. Springfield, IL: Author, 1977.

ALLOCATION BASED ON DISTRIBUTION OF NEEDS

ALLOCATION BASED ON DISTRIBUTION OF NEEDS: OVERVIEW

This procedure is based on the assumption that areas of the State exhibit differential special population needs. Responsibility for programs/services/activities pursuant to these needs is thus allocated to those institutions located in areas of greatest need. Steps involved in using the procedure include linking identified activities to needs assessment data elements, breaking out data by sub-state area and determining eligibility for service delivery based on the sub-state needs associated with the services. Those institutions determined eligible for receiving State/Federal support for delivering the identified activities are then notified and encouraged to apply for such activities.

ALLOCATION BASED ON DISTRIBUTION OF NEEDS: KEY CONSIDERATIONS

- Cost: Utilizing needs data to allocate responsibility for delivering identified services to special populations does not involve any major expenses. The procedure requires minimal staff time to implement. Other direct costs include computer time if data analyses are conducted using computer facilities and expenses for disseminating information to eligible institutions.

- Staff: The procedure requires short-term involvement of a staff member (or consultant) with expertise in data analysis. Additional staff who are familiar with characteristics of targeted special populations and the vocational education delivery system are required to link identified activities to needs data elements. Minimal clerical involvement is required.

- Time: If appropriate data are available the allocation process can be accomplished within a week. To this should be added the usual time allotted for the LEA application process.

- Equipment and Facilities: Access to a computer facilitates the analysis of needs data; however, this is optional.

- Participants: LEAs must be willing to apply for and implement allocated activities. This may require encouragement by the State agency.

- Applications: The procedure can be used to allocate activities to service providers. It requires detailed needs assessment and/or evaluative data which can be broken out by sub-state area.

- Side-Effects: Through this procedure LEAs are made aware of district or regional needs and activities which are capable of satisfying those needs. It requires a cooperative relationship between State and local agencies and, with sufficient interaction, may serve to create such a relationship.

ALLOCATION BASED ON DISTRIBUTION OF NEEDS: IMPLEMENTATION STEPS

Step 1: Pair Activities to Needs

The first step in this procedure is to link activities identified for serving special populations to needs assessment data elements. For example, an activity which the State agency has identified for achieving its objectives could be to implement outreach programs to recruit the disadvantaged into vocational education programs. Through a needs assessment survey the State had earlier determined a high prevalence of disadvantaged persons, a large percentage of which were unaware of area vocational offerings. Since the State also collected information on the school districts in which the respondents resided, this data element is appropriate for determining those areas with greatest need for the proposed outreach systems. If the State had used secondary data sources to determine needs of the disadvantaged, these data elements could similarly be linked to activities. The example activity provided above could be paired to Employment Security Commission data on unemployment rates and, if available, per capita income figures from the State Revenue Department. Such data, though possibly not as precise as agency collected data, would facilitate the targeting of activities to areas of greatest needs.

In other instances evaluative data elements provide the necessary linkages for allocating responsibility. Such elements, obtained through evaluative checklists or similar means, target programmatic needs for more global activities for serving special populations. An example of such a global activity is to modify counseling materials so as to remove any sex, handicap or other biases. Rather than link such an activity to specific target populations it is the State's intention to assure that all schools utilize counseling materials which are bias-free. Thus such an activity is paired to programmatic needs, i.e., specific institutions whose counseling materials have been found to contain biases.

Step 2: Identify Eligible Institutions

For those activities which have been linked to needs assessment data elements, eligible institutions are identified from the geographic distribution of needs. Where the needs assessment data are broken down by school district this is accomplished by identifying those institutions with the greatest need (e.g., the 5 institutions with the highest number of disadvantaged are eligible to initiate an outreach program). If the data are only available on a regional basis, all institutions within those regions with the greatest needs are deemed eligible for the relevant activity. Selection from among the eligible institutions is then accomplished through the application process described in the next step.

Step 3: Stimulate Local Interest

Once the eligible institutions are identified they must be notified of the activities for which they are eligible and be encouraged to include the activities in their application to the State. Through the application process locals are requested to provide further substantiation of the appropriate population, student or programmatic needs, etc. This provides a means for selecting from among institutions, if necessary, and offers a basis for determining level of funding, the final component of the planning process.